

Oct. 4, 1949.

S. MAY

2,483,708

COIN CHANGER

Filed March 3, 1947

2 Sheets-Sheet 1

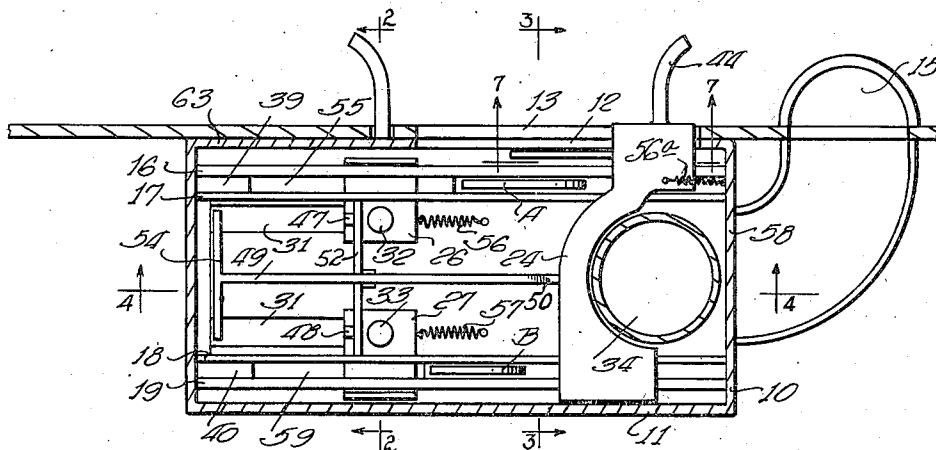


Fig. 1.

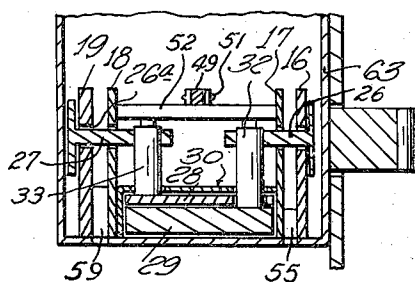


Fig. 2.

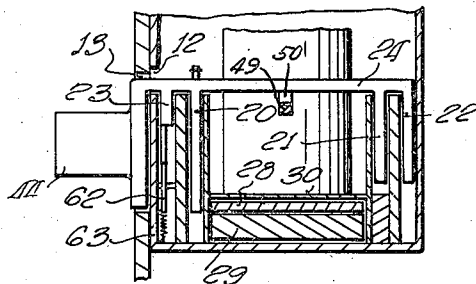


Fig. 3.

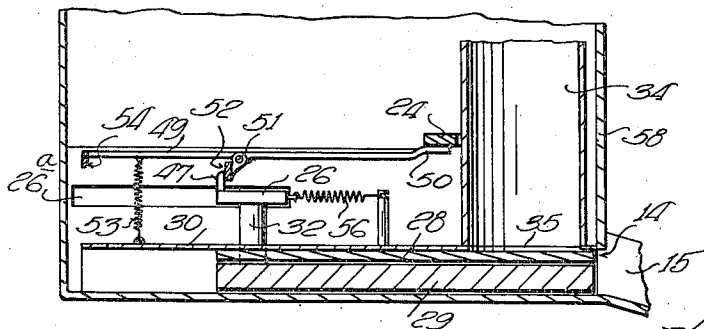


Fig. 4.

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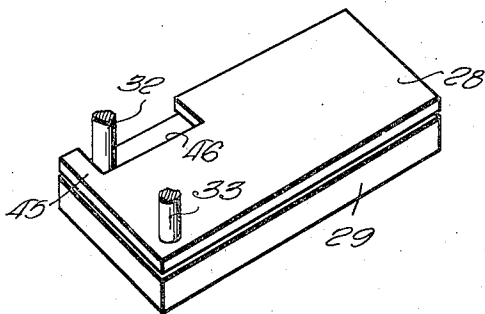


Fig. 6.

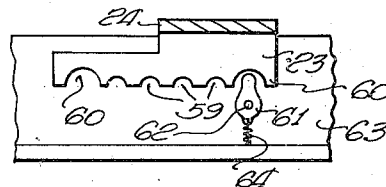


Fig. 7.

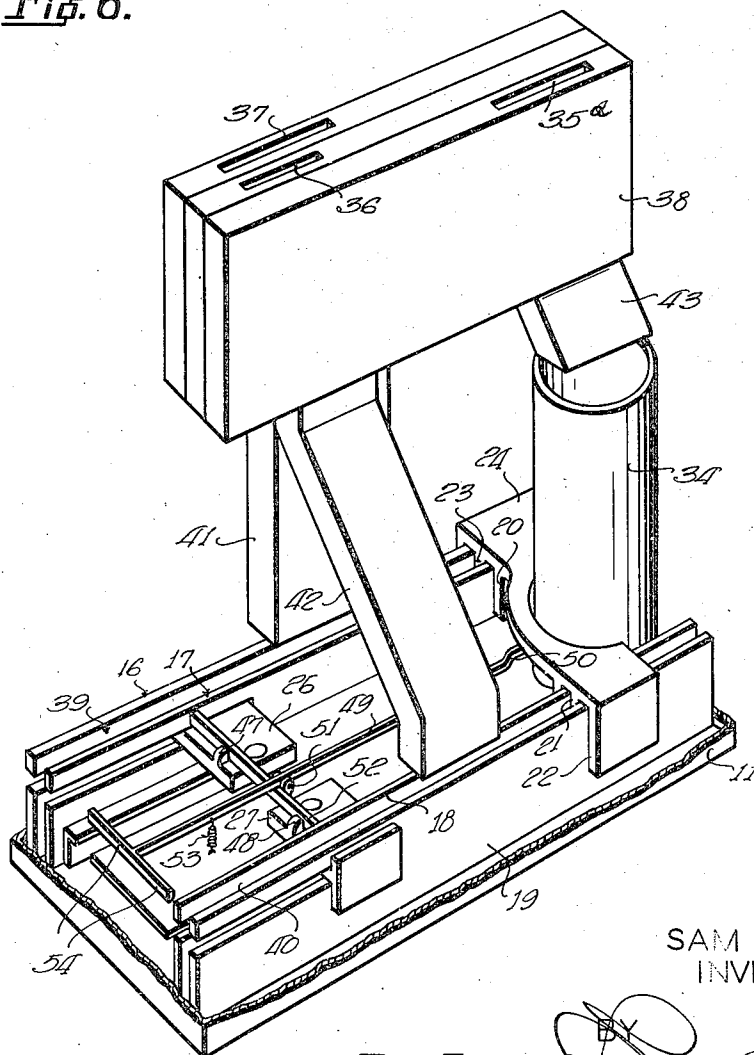


Fig. 5.

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COIN CHANGER

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5 Claims. (Cl. 194—80)

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This invention relates to a new and improved mechanical coin changer.

A further object of the invention is to provide a machine whereby a selected number of coins may be delivered by depositing a coin in a selected slot and operating a lever common to all coins of a predetermined denomination, whereby merchandise and change may be delivered for the deposit of a coin of a greater denomination than that required for the merchandise.

A further object of this invention is to provide a machine of a simple design which will operate entirely mechanically with a minimum number of moving parts and yet be positive in its action.

With the foregoing and other objects in view, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds taken in connection with the accompanying drawings wherein:

Figure 1 is a plan view of the machine used to illustrate its operation by coins of different denomination.

Figure 2 is a cross-sectional view taken on line 2—2 of Figure 1.

Figure 3 is a cross-sectional view taken on line 3—3 of Figure 1.

Figure 4 is a cross-sectional view taken on line 4—4 of Figure 1.

Figure 5 is an isometric view of the complete unit with the outer shell or box broken away to show the general construction of the machine and the dispensation of coins of different denominations in relation to the machine.

Figure 6 is an isometric view of two coin ejectors to illustrate that the uppermost plate may be operated singularly when a coin of the proper denomination has been deposited in the machine.

Figure 7 is a fragmentary view taken on line 7—7 of Figure 1, illustrating a ratchet to compel completion of a stroke of the lever so that only one operation of the machine is possible on each coin deposited.

In the drawings the numeral 10 designates a coin changing machine consisting of a box shaped housing 11 entirely enclosing the machine except for slot 12 to match slot 13 in the face of the vending machine and slot 14 for the ejection of coins to coin chute 15. Partitions 16, 17, 18 and 19 are fastened by welding or other suitable means to the sides and bottom of box 11 to form grooves for the lugs 20, 21, 22 and rack 23 of operating plate 24 to operate in. Partitions 16, 17, 18 and 19 are provided with slots 26a which are matched to serve as guides for actuating lugs 26 and 27. Coin ejector plates 28

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and 29 are enclosed in cover plate 30 with sufficient clearance to allow ejector plates 28 and 29 to operate freely and provided with clearance slots 31 for the operation of pins 32 and 33. A magazine 34 is mounted on cover plate 30 directly over a hole 35 in cover plate 30, so that coins will normally rest on the top of ejector plate 28.

For the purpose of description this machine will be described as taking coins of denominations of 5¢, 10¢ and 25¢ for the purchase of merchandise having a value of 5¢.

In the drawings, the coin magazine 34 is circular in construction to receive coins deposited in slot 35a for the purchase of merchandise without the service of the machine to deliver change. The magazine may also be periodically loaded by the service man to insure a sufficient supply of coins to make change. Slot 36 is for deposit of a 10¢ piece requiring change of one 5¢ piece. Slot 37 is for deposit of a 25¢ piece requiring change of four 5¢ pieces.

In all cases the coin is received first through coin control unit 38 of standard well known construction, commonly known as coin ejector which operates the vending machine by making the necessary electrical or other contacts within the coin control unit 38 or rejects a spurious coin prior to operation.

As is best shown in Figure 1, the machine has two slots 39 and 40 respectively, which will receive coin A or B as received from chutes 41 and 42 as shown in Figure 5. The chute 43 is for the deposit of a coin of the correct denomination in the magazine 34. The coin vending machine is so constructed that a 25¢ piece deposited in slot 37 makes the necessary contacts (not shown) in the coin control unit 38 to dispense the merchandise and drops through chute 41 to groove 39. An operating plate 24 carrying the operating arm 44 is provided with lugs 20, 21, 22 and 23 and they act as guides to keep the movement of the plate in alignment horizontally and which also operates the machine through the medium of a coin A or B.

The top plate 24 and lug 20 are so spaced from ejector operating arm that movement of operating lever 44 contacts a coin of 25¢ denomination deposited in groove 39 at lug 20, the opposite side of the coin contacts the ejector operating lug 26 fastened to ejector plate 29 stationarily by means of the pin 32. Pin 32 in turn slides ejector plate 28 by means of lug 45 formed by notching plate 28 to form a recess 46. Plate 28 is of a thickness slightly less than that of a 5¢ piece.

Plate 29 is of a thickness slightly less than a stack of three 5¢ pieces.

Ejector operator arm 26 and 27 are constructed with upward projected lugs 47 and 48, preferably beveled as shown in Figures 4 and 5. Catch 49 is a T-shaped member slightly elevated at one end at 50 as shown in Figure 4 and pivoted about a pin 51, hinged to stop 52. Tension spring 53 is suitably attached to the catch and the projection plate cover 30 holds the catch down so that when operating plate 24 passes over elevation 50, the fingers 54 of catch 49 drop down below the level of the upward projected lugs 47 and 48.

When operating plate 24 is moved to its extreme forward position, fingers 54 snap over lugs 47 and 48, thereby holding ejector operating arms 26 and 27 so that when plate 24 starts its return to a starting position, the tension is released on coin A and it is allowed to drop through opening 55 to a suitable container (not shown). When operating plate 24 is returned to its normal position by tension spring 56a suitably fastened to end plate 58 of box 14, the operating plate 24 rides the elevated portion 50 of the catch 49 downwardly, thereby pivoting catch 49 upwardly about pivot pin 51 and releases ejection plates 28 and 29 to the tension of springs 56 and 57 to propel change into coin chute 15.

When a dime is deposited in slot 26, it makes the necessary contacts in coin control unit 38 to operate a vending machine whereupon the coin passes through chute 42 into slot 40. Operating plate 24 is then moved forwardly by lever 44, lug 21 pushing the dime B against ejector lug 27 fastened solidly to ejector plate 28 by means of upright pin 33. Further movement of the operating plate 24 slides the ejector lug 27 and ejector plate 28 until the catch 54 snaps over the lug 48 thus holding ejector lug 27 and ejector plate 28 until the operating plate 24 is returned to its starting position and the coin is dropped through slot 59 into a coin box (not shown) and catch 49 is tripped by plate 24 passing over elevation 50 thereon, as previously described in operating the machine with a 25¢ piece.

For making change for a dime, only the upper ejector plate is used to eject one coin. Movement of ejector lug 27 and ejector plate 28 independently of ejector plate 29 is accomplished through the provision of the recess 46 in plate 28 which is of such length as to allow plate 28 to move to catch 54 without contacting pin 32. Thus when in this position, the change coin stack in magazine 34 drops to the top of the ejector plate 29 which has remained in its normal position. When catch 54 is tripped, the ejector plate 28, slightly less in thickness than a 5¢ piece, ejects one coin from the bottom of the stack to chute 15. To keep the machine from being operated repeatedly with the same coin, the plate 24 is provided with a ratchet assembly as best shown in Figure 7. The outer lug 23 of plate 24 has a series of small notches 59a therein and oversized notches 60. A dog 61 pivoted on pin 62 is attached to plates 63 and 16 by means of a tension spring 64 and will catch in notches 59a at an angle if an attempt is made to reverse the direction of the movement of operating arm 44 before the stroke is completed, thus stopping plate 24.

Upon completion of a stroke, the dog falls into one of the end notches 60, permitting the reversal of the dog and consequent release of the rack 23 for return to its original position.

Manifestly, the construction as shown and described is capable of some modification and such

modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. A change maker comprising parallel coin receiving grooves, a change magazine, slidable coin ejector plates below said magazine whose relative thicknesses predetermine the number of coins discharged thereby from said magazine, a spring tensioned operating plate slidable in said grooves having lugs depending into the latter, means for directing coins of predetermined value into respective coin grooves, in advance of said lugs, means having independent operative connection with said ejector plates against which coins are moved in said grooves for retracting both of said ejector plates by one coin and a single plate by a coin of lower value, said plates, upon their return under spring tension, being effective to discharge coins from said magazine in value corresponding to that of the operative coin in one of said grooves.

2. A change maker comprising a pair of coin grooves means for directing coins for exchange into said grooves in accordance with their denomination, each of said grooves having a coin release slot in one end, a change containing magazine, coin ejectors one above the other and in slidable relationship below said magazine whose relative thickness determines the number of coins displaceable thereby from said magazine, an operating lever having lugs depending therefrom into said grooves, means having operative connection independently with said ejectors, engageable and operated by coins in said grooves under pressure of said lugs to retract both ejectors upon the insertion of one coin and a single ejector upon the insertion of a coin of lower value, spring means for returning said ejector to eject coins of equal value from said magazine and means for delaying the return action of said ejector.

3. A change maker comprising grooves into which coins are deposited according to their denomination, a change magazine from which coins in value corresponding to that of a coin in one of said grooves are discharged, a coin ejector for each of said grooves, an operating plate, lugs carried by said plate and engageable with a coin in one or the other of said grooves, means having operative connection with said plates independently and against which coins are moved by said lugs to retract both of said coin ejectors upon insertion of one coin and a single ejector upon the insertion of a coin of lower value, spring means for returning said retracted ejector to discharge coins from said magazine in value corresponding to that of said deposited coin and means for delaying the return action of the retracted ejector to release the operative coin from its groove.

4. In a change making machine, a pair of horizontal coin receiving grooves in spaced apart parallelism, each having a coin release slot in one end thereof, a change containing magazine intermediate said grooves at one end of said machine, change ejector plates disposed one upon the other in relative sliding relationship below said magazine, the upper plate having a slot therein, the thickness of each of said plates determining the number of coins to be ejected from said magazine, a spring tensioned operating plate, lugs on said operating plate extending into said coin grooves, means for directing coins of different denomination into respective coin grooves

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in advance of said lugs, means for actuating said operating plate to move coins in said groove to a point of discharge through the release slots therein, a pin rising from each of said ejector plates, the pin of the lowest of said plates extending through the slot of the overlying plate for independent movement of said latter plate, a lug on each of said pins effective upon movement of said coins to retract both plates by one coin and a single plate by a coin of lower value and spring means for returning the retracted plate to propel change from said magazine of predetermined value.

5. A change making machine including parallel coin grooves, a change containing magazine, relatively slidable coin ejector plates disposed one above the other below said magazine the upper of which is slotted, a pin mounted on and perpendicular to each of said plates, one of said pins extending through the slot of the upper of said plates, a spring loaded operating plate having lugs depending into said coin grooves, means for directing coins of different denominations into

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respective coin grooves in advance of said lugs, means attached to each of said pins against which coins are urged by said lugs to retract both coin ejector plates by one coin and a single ejector plate by a coin of lower value, means to delay return action of said retracted ejector plate and spring means effective upon spring return of said operating plate to propel said retracted ejector plate forwardly to discharge coins of predetermined value from said magazine.

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